

PROJECT HOPE

DEVELOPING SUSTAINABLE CHILD SURVIVAL SERVICES WITH THE PRIVATE SECTOR IN MALAWI: A REPLICATION OF LESSONS LEARNED

Final Evaluation Report

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ACRONYMS

AIDS	Acquired Immuno-Deficiency Syndrome
ANC	Antenatal Care
ARI	Acute Respiratory Infections
BHR/PVC	Bureau for Humanitarian Response/Office of Private and Voluntary Cooperation
CBD	Community-Based Distribution (of contraceptives)
CDD	Control of Diarrheal Disease
cs VII	Child Survival VII Project
cs X	Child Survival X Project
DHMT	District Health Management Team
DHO	District Health Officer
DIP	Detailed Implementation Plan
EPI	Expanded Programme of Immunization
HIS	Health Information System
HSA	Health Surveillance Assistant
HIV	Human Immunodeficiency Virus
IPCC	Interpersonal Communication and Counseling
KPC	Knowledge, Practice and Coverage Survey
MOHP	Ministry of Health & Population
MTE	Mid-Term Evaluation
OPD	Out-patient Department
ORS	Oral Rehydration Salts
OR-I	Oral Rehydration Therapy
STD	Sexually-Transmitted Disease
TTV	Tetanus Toxoid Vaccination
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

The Child Survival X (CSX) Project is the second phase of Project HOPE's initiative to work with the private sector tea and coffee estates to improve the health of estate employees. The project has focused on expanding preventive health services, improving the quality of care provided by estate medical staff, expanding coverage to villages near the estates in Mulanje, and enhancing overall sustainability of the improved estate health care system. Project HOPE is the only PVO working primarily with the estate sector in Malawi. The approach has been to strengthen, through training, the technical and supervisory skills of health care providers at each level in the system - from estate medical staff to HSAs to volunteers. HSAs and volunteers have, in turn, provided health education to mothers through group health sessions and individual counseling.

Health interventions have addressed immunization for women and children, nutritional improvement for children and mothers, control of diarrheal diseases, maternal care and family planning, case management of ALRI, malaria control, and HIV/AIDS prevention. To support practice of child survival behaviors, HSAs and volunteers have **used** rosters listing target groups to follow up on key interventions such as EPI, growth monitoring, and antenatal care. Under 5 clinics and antenatal and family planning clinics have been expanded to meet increased demand for services. A critical component of the overall project has been implementation of a plan to sustain the estate health network. *The local NGO, Thandizani Moyo, was created with funding support from the Tea Manufacturers Association to take over many of the training and monitoring functions of Project HOPE.* Developing collaborative linkages between the estates and the Ministry of Health & Population (MOHP) has been another important facet of the sustainability plan.

This report presents the major findings of the final evaluation which took place from July 15-30, 1997. The evaluation was conducted by an eleven-member evaluation team composed of representatives of the Ministry of Health, *the local NGO Thandizuni Moyo*, field- and headquarters-based Project HOPE staff, and an external consultant who served as team leader. (A complete list of the evaluation team members, their designations and institutional affiliations is attached in Appendix A.) The team interviewed 248 people during the course of 77 interview sessions held with estate managers and medical staff, Health Surveillance Assistants (HSAs), volunteers, community groups and District Health Management Teams in Mulanje and Thyolo districts.

Project Accomplishments

Project HOPE has been able to successfully replicate its model for private sector collaboration on the estates in Mulanje, with slight modifications from CSVII. Prior to implementation of the CS projects, estate residents had limited access to preventive health services; there were no substantive linkages between MOHP and the estates since the estate clinics were private domain. As a result of the CSVII and CSX projects, estate residents **now** benefit from preventive health services offered through an extensive, community-based health network with more than 43 trained HSAs and volunteers covering a target population (women of child-bearing age and children under 6) of approximately 168,000. Notable accomplishments include an increase in **the** quality of care and range of services now offered through the estate health care system. The number of Under 5 clinics has increased from 16 to 19; antenatal clinics from 8 to 19, and family planning from 2 to 11 static service centers and 17 mobile service providers. Approximately 65% of women with children under two years have attended health education sessions offered through the program.

These broad project accomplishments have contributed to some significant improvements in knowledge and practice of preventive health measures in the intervention areas, as follows:

- Immunization drop-out rate for children has decreased from 2.3% to 0.04-0.07%. A significantly higher number of mothers with children under two years know the importance of TTV and have obtained **TTV2**. Health education efforts and greater availability of antenatal services have contributed to these increases.
- The number of children who receive extra meals during recovery from an episode of diarrhea has increased from baseline by approximately 20%, surpassing the project target. Appropriate treatment-seeking has improved as well, with mothers consulting estate clinics or MOHP facilities for advice in the vast majority of cases.
- Knowledge of mothers on the age of weaning has increased from baseline by over 25%. Knowledge on proper supplementation has improved even more significantly, by approximately 50%. Almost all mothers interviewed for the final Knowledge, Practice and Coverage (KPC) survey are still breastfeeding their 20-23 month children, also indicating an increase in practice level of 50%.
- Retention of Road-to-Health cards among children under 5 years continues at a high rate of approximately 90%.
- The project met the project target for increasing knowledge level of mothers regarding supplementing their children's food with Vitamin A-rich foods to a level of 60%. Approximately 40% of children 12-23 months received Vitamin A capsules within the six months prior to project completion, also at target. These rates are significantly higher than baseline.
- Of women with maternal health cards, over 90% had had two or more antenatal visits during their last pregnancy. This well beyond the 60% target set for this intervention.
- There has been a significant and commendable increase in the usage rate for modern contraceptives among women with children under two, from 12.7% to 27-34.0%. Availability of services and personnel trained in family planning service provision has expanded widely, contributing to this increase in the CPR.
- Estate medical staff, health workers and mothers are more knowledgeable regarding signs and symptoms of ALRI. Medical staff have better knowledge of **ALRI** case management procedures, as indicated on post-test score.
- Knowledge levels among mothers about how malaria is transmitted is steadily increasing. The target for appropriate treatment-seeking was met, with over 90% of mothers seeking treatment for their children with fever.
- 36 youth Anti-AIDS clubs were formed and registered with the Regional AIDS Office. 183 compound watchmen received training. Estate medical staff received training in the syndromic approach to STD case management; MOHP perceives an increase in the number of STD cases now referred from the estates - a positive step.

Lessons Learned

Health Education.

The project's health education approach assumes that many target group members will attend health talks given by the health workers. The final KPC results, which indicate that 61.0%-67.7% of mothers with children under 2 years had attended health talks within the last 6 months, shows that this has been a correct assumption.

There is a correlation between some of the key messages given through health education and child-protective behaviors being practiced. The project emphasis on health education appears to have been effective in improving health practices in areas where mothers have a measure of control and support services are available. The Mulanje District Health Management Team, when interviewed during the evaluation, expressed that Project HOPE has played a facilitative role and has created demand for services through health education and community outreach.

Some health messages are more difficult for target groups to practice. This has been particularly noticeable with maternal **and** child nutrition messages. Increasing quantity as well as quality of food requires either land for gardens, fields, and/or cash to buy food. Estate workers suffer seriously from a lack of these resources, a situation which may also constrain efforts to improve nutritional practices. It is possible that low attendance at nutrition health **talks was affected** by the fact that families have few alternatives to practice the nutrition advice given **by** health workers. Advice given must **be** practical for learners to apply.

Areas in which health worker knowledge and/or attitudes are weak logically affect knowledge and practice levels of mothers, as was found with the exclusive breastfeeding, diarrhea prevention interventions, and maternal nutrition interventions. In some cases, it appears that cultural beliefs and practices may be the basis for creating barriers to improvement in the intervention area. In order to ensure that health messages appropriately address cultural beliefs, more information about the cultural basis for harmful practices is needed through in-depth study. Health curriculums should incorporate findings of research in order to convey messages appropriately.

There may **be** too many key messages for HSAs to impart on each health topic. Low literacy skills among mothers present a problem in that they cannot absorb an overload of health information in one health session: HSAs are confronted with deciding which messages to emphasize. The curriculums need to provide clear messages in a workable quantity so that HSAs and volunteers can more effectively impart **knowledge to** mothers.

Health Information System:

Most of the volunteers' rosters are not maintained according to standards set in training even though most volunteers are able to explain the purpose of keeping the roster and name the interventions for which rosters are used for targeting. Reasons may include the shorter length of time and less training received by the volunteers in the **use** of rosters in comparison to HSAs. It may also be a factor of lower educational level as well as supervision. Specific reasons for the lack of precision in record-keeping would need to be explored to determine if it is feasible to rely on community-level workers to provide basic HIS data and, if so, what further training is needed to develop record-keeping skills.

CDD.

Key messages in home management of diarrhea seem to be translating into practice by more mothers. It appears that the health education approach has been effective in producing positive results in this intervention area. Knowledge of health workers on prevention of diarrhea is notably weaker than knowledge on treatment however. An emphasis on prevention of diarrhea in health worker training and in health education sessions could possibly yield even more beneficial results in controlling diarrhea.

Nutritional Improvement:

The cultural barriers to exclusive breastfeeding appear to remain strong even though health education efforts have raised awareness of benefits to mother and child. The project target of 40% exclusive breastfeeding was ambitious given that little is known about the barriers and how to overcome them. Further information is needed about how to overcome the cultural barriers in order to design appropriate interventions. Focus group discussions to gain information about the cultural barriers were mentioned as a potential activity for this intervention in the DIP but were not carried out. Considering the difficulty of changing practices even as knowledge is increasing about benefits of exclusive breastfeeding, focus group discussions would be more appropriate than ever. Interventions designed to impact on exclusive breastfeeding need to be based on more sound information gained through thorough study.

Maternal Nutrition:

HSAs most often provided health talks on maternal nutrition and care at antenatal clinics. However, women who attend the antenatal clinics are already pregnant, in which case messages may be reaching them too late; many important maternal nutrition messages are appropriate for adolescent girls and women who are not yet pregnant. These women and girls represent missed opportunities to have impact on maternal nutrition. Providing health talks to *all* women of child-bearing age may have a greater impact on maternal nutrition. This means that health education sessions should take place in venues other than the antenatal clinics, wherever these groups are most likely to be able to attend.

In general, there is low interest in nutrition-related activities, likely rooted in cultural preconceptions and practices. More information is needed about these barriers in order to design appropriate interventions. Focus groups with health workers on their attitudes and beliefs may yield interesting insights as a place to begin more formal study on nutrition barriers,

Family Planning:

Currently, 50% of HSAs are males, a fact which may present a barrier to health education on reproductive health matters since it is culturally unacceptable for unrelated males to meet alone with married women. Further training for health workers in Interpersonal Communication and Counseling (IPCC) techniques may increase the effectiveness of education on family planning and maternal care, but the acceptability of male HSAs providing such counseling should be determined before any large-scale effort is initiated. Further study to determine effectiveness of various health education approaches for family planning is warranted, including investigating the gender aspects.

Sustainability

The newly-created local *NGO*, *Thandizani Moyo* (TM), offers an excellent option for phaseover of Project HOPE's CSX program. Three of the four staff members worked as Project HOPE staff on the CS programs and are skilled in performing the functions that are expected by the estates. The director is well-known to most of the estate managers, having worked with the estate system for many years. Having experienced staff, funding for **core** operating costs from the Tea Manufacturers Association, and a director who is well-connected with the estates are positive factors toward preparing TM for taking over health network activities from Project HOPE.

However, expectations are high for TM. Project HOPE has set up an extensive and complex array of interventions with the assistance of many staff; monitoring and supervision at the same level as provided by Project HOPE is not feasible for a four-person organization, especially one that is newly-created and still defining its long-term mission, vision and goals. Ideally, Project HOPE can continue to assist TM by providing training opportunities for staff and sharing other resources to the extent possible in order to help develop TM's institutional capabilities. If TM can successfully manage current work load and expectations, this phaseover strategy will **be** a useful model for replication in other programs that work with the private sector.

DEVELOPING SUSTAINABLE CHILD SURVIVAL SERVICES WITH THE PRIVATE SECTOR IN MALAWI: A REPLICATION OF LESSONS LEARNED

1. Project Background and Description

Project HOPE, with USAID support, began implementing health activities in the southern district of Thyolo in Malawi in 1990, starting with a pilot project to improve health services offered to estate workers and their families on eight estates owned by the Central Africa Company. Following the successful pilot project, Project HOPE received USAID funding to implement its first three-year Child Survival Project (CS VII) in Malawi from 1991-94, expanding program coverage to 39 estates in Thyolo District. The focus of these earlier programs was on strengthening the estate health system by training estate health providers in child survival-related interventions, expanding community outreach by developing a network of Health Surveillance Assistants (HSAs) and volunteers, and implementing a community health education program to increase preventive health practices among project beneficiaries.

The second and current Child Survival Project (CS X) commenced in September 1994. This grant enabled Project HOPE to expand coverage to 19 additional estates in adjacent Mulanje District and to modify the project approach, placing a greater emphasis on improving the quality of care provided by estate medical staff, expanding preventive health services, expanding coverage to villages near the estates in Mulanje, and enhancing overall sustainability of the improved estate health care system by the estates themselves.

Project HOPE is the only PVO working primarily with the estate sector in Malawi. Project Hope's CS X program covers a target population of approximately 400,000; covered are the **two** key target groups - children under six years and women of fertile age - approximately 84,000 in each group. Approximately 60% of the target beneficiaries live on estate compounds while 40% reside in nearby villages. Except in the Thyolo estates which were covered under CS VII, residents of estate compounds generally did not utilize the services of the Ministry of Health (MOHP) unless referred by the estate medical **staff**; estate medical services largely offered curative care and little in the way of preventive health care even though many of the common illnesses reported (malaria, diarrheal diseases, malnutrition, HIV/AIDS) are preventable. Family planning service provision was also limited. CS X has heavily emphasized health education through a network of trained outreach workers to infuse preventive health into the estate medical systems.

The project builds on the willingness of estate managers, demonstrated during CS VII, to contribute funding and other resources toward improved and expanded health services for their employees. The approach has been to strengthen, through training, the technical and supervisory skills of health care providers at each level in the system - from estate medical staff to **HSAs** to volunteers. **HSAs** and volunteers have, in turn, provided health education to mothers. To support child survival behaviors, HSAs and volunteers have used rosters listing target groups to follow up on key interventions such as EPI, growth monitoring, and antenatal care.

An important difference exists in the approach between the two districts: community-level activities are still carried out directly by HSAs in Thyolo, as during the CS VII project; in Mulanje, volunteers have been recruited and trained as community-level health promoters, **supervised** by HSAs. Also in Mulanje, the project covers villages near the estates where there is a large population of estate employees, utilizing the MOHP HSAs to provide supervision to volunteers.

In order to effectively reach the communities living on the estates, Project HOPE has carefully considered the hierarchical structure of estate management. The estates are owned by companies, most of which are multinational and headquartered outside of Malawi. The compounds and villages where the estate workers reside are located on or adjacent to the estates. Most estates have medical services, though the level of services varies widely between them. The Project HOPE CS projects have focused on Health Surveillance Assistants, who are employees of the estates, as the main link between the estate managers, estate medical services, and the target population. Structurally, coverage levels break down as follows:

	<u>Thyolo</u>	<u>Mulanje</u>
No. of Companies	9	5
No. of Estates	33	20
No. of Villages and Compounds	236	158
No. of HSAs	26	14
No. of Volunteers	176	216

II. Evaluation Overview

A. Terms of Reference

Due to end by August 31, 1997, Project HOPE is required by USAID's Bureau for Humanitarian Response/Office of Private and Voluntary Cooperation (BHR/PVC) to conduct a final evaluation in order to assess impact, effectiveness and sustainability of the project.

This report summarizes the final evaluation which was conducted from July 15-July 30, 1997. The evaluation specifically investigated:

- the degree to which project objectives were met and if there were any deviations from the Detailed Implementation Plan (DIP);
- whether there were any unintended effects of the project, either positive or negative;
- lessons learned which may be applicable to future projects that Project HOPE and/or other PVO/NGOs may undertake;
- the degree to which the project followed the DIP sustainability plan and factors inhibiting or enhancing sustainability; and,
- an assessment of project expenditures vs. budget.

B. Evaluation Framework

The evaluation was carried out by an eleven-member evaluation team composed of representatives of the Ministry of Health, the local NGO *Thandizani Moyo*, field- and headquarters-based Project HOPE staff, and an external consultant who served as team leader. A complete list of the evaluation team members, their designations and institutional affiliations is attached in Appendix A.

The evaluation team followed CS IX Guidelines for Final Evaluation, dated May 3, 1996; CS X guidelines were not yet released by USAID. The team worked together reviewing the DIP and other key project

documentation (Appendix E - Reference Materials). finalizing survey questionnaires to collect information from project participants, collecting data through field interviews, tabulating and analyzing survey findings, and reviewing final Knowledge, Practice and Coverage (KPC) survey results in comparison with baseline. The final task of the team was to draw some conclusions based on the findings. The final report was written by the evaluation team leader. The team agreed upon the following work schedule to complete the evaluation:

July 15-16	Team orientation Project briefing and review of background materials Finalization of survey questionnaires
July 17-18	Data collection in Thy010 District
July 19	Data collection in Mulanje District
July 20	Data collection in Mulanje District Preliminary data tabulation
July 21	Data collection in Mulanje and Thyolo Districts Interviews with District Health Management Teams in Thy010 and Mulanje Districts
July 22-24	Data tabulation Compile findings from survey Analysis and conclusions
July 25-30	Report preparation

Data were collected through 77 interviews conducted with estate compound and village residents, volunteers, HSAs, estate medical staff, estate managers and general managers, and the District Health Management Teams in Thy010 and Mulanje; a total of 248 people were interviewed. Evaluation team members modified survey questionnaires which were originally designed for Project HOPE's CS VII final evaluation, the precursor to the CS X project (Copies of the questionnaires are attached in Appendix F - Survey Questionnaires). The survey provided qualitative information about the project to supplement the KPC survey results.

Interviewees were randomly chosen using HSAs as the basis for selecting estates on which to interview associated medical staff, volunteers, compound residents and estate managers. 25% of the estate-based HSAs in each of the two districts were interviewed, as well as 25% of the MOHP HSAs who cover the project villages in Mulanje. The rationale for this approach to selection is that the HSAs are the key community outreach mechanism linking the project beneficiaries with health services and they are the main conduits through which health education is provided to project target groups. In Mulanje District, villages covered by the project were selected according to location at a medium distance from the estate medical services. General Managers were randomly chosen for interviews on the basis of the companies that they manage rather than estates, since several estates may be managed by the same company. A complete list of interviewees is attached as Appendix D - Interview List. Each level of project participant was covered as follows:

- 16 HSAs
- 16 Volunteers
- II groups of compound residents'

¹ In cases where circumstances prevented the evaluation team from interviewing in a village or compound, such as a funeral, the agreed upon protocol was to go to the nearest village or compound associated with the same Health Surveillance Assistant.

- 5 groups of estate-associated village residents
- 8 Estate Medical Staff²
- 11 Estate Managers
- 8 Company General Managers
- 2 District Health Management Teams

All members of the evaluation team were involved in each step of the evaluation process with the exception of report writing. There were only two non-Chichewa speaking members of the team, for whom translators were provided to assist with interviewing.

III. Evaluation Findings

A. Project Accomplishments and Lessons Learned

The overall goals of the Project HOPE CS X project are to:

- reduce child morbidity and mortality;
- reduce morbidity and mortality of women of child-bearing age (15-45 years)

Specific objectives related to achievement of these goals are listed in the following section, with a summary of findings from the interviews with project participants, KPC survey results, and other available data that provide insight on accomplishments and factors affecting project activities.

1. Achievement of Project Objectives

a. Achievements related to Immunization

- 90% of children age 12-23 months will be fully immunized.
- The immunization drop-out rate will be maintained at about 2%.
- 80% of mothers will be protected with TTV2 at birth of youngest child under 2 years.

Findings - Immunization Strategies: HSAs and volunteers have been trained to promote immunization through health education for mothers at Under 5 clinics and in communities, as outlined in the DIP. Rosters are developed through a twice-yearly census conducted by the HSAs and volunteers, with monthly updates through home visits. Training has been provided to the Thyolo HSAs and the Mulanje volunteers to enable them to use the rosters for identification and follow up of eligible cases for EPI and antenatal and nutrition clinic participation. HSAs have received training to assist medical staff with vaccinations during Under 5 clinics.

Health Worker Knowledge on EPI: The evaluation team surveyed HSAs and volunteers to assess their knowledge about which diseases are prevented through immunization. 100 % of HSAs mentioned measles while only 75% mentioned whooping cough; other preventable diseases were mentioned at frequencies within this range. 94% of volunteers could name polio while only 44% mentioned diphtheria, with other diseases falling between these two extremes (81% mentioned measles). In response to a question about

² Three of the 11 estates where HSAs were chosen for interviews have no medical staff; thus, there is a discrepancy between the number of HSAs and medical staff who were interviewed.

when the various immunizations should be given, HSAs answered correctly more often than volunteers; all HSAs knew that BCG and polio are given at birth and that measles is given at 9 months. 75% of volunteers responded correctly for BCG and polio at birth while only 56% knew when measles should be administered. This difference in knowledge level between the HSAs and volunteers is not surprising given the more intensive training HSAs have received throughout the project - 8 weeks for HSAs compared to 7 days of training for volunteers - and their greater literacy level. Both groups of health workers have had annual refresher trainings in addition to their basic training, the content of which is determined through a training needs assessment undertaken by Project HOPE staff; they receive 5-7 days refresher training per year. Responses from both groups of health workers indicate that there is good awareness of the importance of immunization and the diseases that are prevented but specific knowledge on which immunizations are given and when they should be given is less well-ingrained.

EPI Activities: All volunteers and HSAs reported carrying out a variety of activities to promote EPI, with group health education being the most reported activity (81% of HSAs; 56% of volunteers). HSAs also frequently reported assisting at U5 clinics (63%) and giving vaccinations (69%). Individual talks were mentioned least frequently by both groups of health workers (HSAs - 44%; volunteers - 44%). There was no apparent difference in activity levels between the compound volunteers and the volunteers who are supervised by MOHP.

When compound and village groups were asked which activities the volunteers and HSAs undertake in the communities, EPI was one of the three most frequently mentioned responses for both categories of health workers. If number of attendances at health talks are an indication of interest in a particular topic, immunization ranks fifth among the 8 health topics discussed by HSAs, with approximately 15,000 attendances over the course of the grant³.

Use of Rosters by Health Workers: Rosters are maintained by the HSAs in Thy010 and by the volunteers in Mulanje; Project HOPE set up the roster system in such a way in order to see what differences might occur in roster maintenance and use by different levels of health workers. Both levels of health workers who were surveyed mentioned follow-up of target individuals as one of the main uses of the rosters which they keep; there was universal understanding among those interviewed about the purpose of rosters for targeting individuals and recording health data. The evaluation team checked rosters of health workers to see if they are keeping them up-to-date and if they are using them for targeting purposes according to procedures in which they were trained (i.e., circling those individuals on the roster who require follow-up at monthly home visits). It appeared that the Thyolo HSAs use their rosters consistently and keep them in order, but it was not possible in most cases to read some Mulanje volunteer rosters. It was not possible to determine whether or not monthly home visits are being made by the volunteers to update the rosters, but all reportedly were doing so. There is little difference in EPI coverage levels between Mulanje and Thy010 despite the difference in ability to maintain rosters between the two levels of health workers. The difference may be explained, as above with knowledge levels, and by the variance in length and intensity of training. It may also be a factor of higher educational level of the HSAs as well as supervision from different levels of health workers. These issues would be worth exploring further if the roster system is to be continued.

EPI has continued to be a major emphasis of the MOHP, and Project HOPE's strategies appear to have supported this effort. Refresher training for HSAs and volunteers in the last half of the project emphasized EPI along with family planning and ARI.

³ Quarterly health education attendance reports are produced by Project HOPE's HIS, based on the HAS Monthly Consolidated Reports; data are available through the first quarter of 1997.

Findings - Childhood Immunizations: The final KPC rates for fully immunized children among the sample for the 12-23 months age group are 72.8% and 83.7%, respectively, for Thy010 and Mulanje. This compares with the baseline rates of 85% and 80%. The end-of-project rates show good overall immunization coverage, slightly less than the 90% target which was set in the DIP.

Findings - Childhood Immunization Drop-out Rates: Drop-out rates for immunization have improved from 2.3% in both districts at baseline to 0.07% and 0.04% for Thy010 and Mulanje, respectively. HSAs in Thyolo and volunteers in Mulanje who were surveyed reported that they use the rosters to identify defaulters for follow-up, though accuracy of the volunteers' rosters was, in some cases, questionable upon inspection by the evaluation team. The estates have provided logistical support to obtain immunization supplies from the MOHP, thereby making EPI services more accessible to estate residents. Coordination between the estate medical services and MOHP on EPI and the continued high priority given to EPI by MOHP help to make it a high profile activity.

Findings - Immunizations for Mothers: The final KPC survey results show a significant increase in mothers' knowledge about the importance of TTV and in TTV2 coverage rates. 80.3% of women surveyed in Thyolo and 85.3% in Mulanje know that more than two doses of TTV are needed to protect the mother and baby, a key message which HSAs and volunteers have been trained to give during health talks; this compares to baseline figures of 66% and 63% for Thy010 and Mulanje, respectively. Among women with maternal health cards the TTV2 coverage rates are 55% and 67.3%, respectively, for Thy010 and Mulanje - a notable rise over baseline rates of 13% and 65%.

HSAs and volunteers who were surveyed answered that they use their rosters to identify clients for TTV and antenatal clinics, even though the roster maintenance appears to be a problem for volunteers. Maternal card retention is low, with only 39.7% of Thy010 mothers and 30.8% of Mulanje mothers holding cards at the time of the final KPC. TTV, like other immunizations, is promoted during group health talks. It is reasonable to conclude that high awareness and increased immunization rates are attributable to the health education approach Project HOPE has used.

b. Achievements related to Control of Diarrheal Disease (CDD)

- 80% of children receiving the same/more *breastmilk/food-based liquids/foods*.
- 80% of children treated with *home-available fluids (HAF)*.
- 80% of children receiving *extra meals after recovery*.

Findings - CDD Strategies: HSAs and volunteers have been trained to pass on key CDD prevention and treatment messages to mothers at health talks. The key messages are: danger signs of dehydration; early initiation and increased frequency of fluids; continued breastfeeding; more frequent small feedings during diarrheal episodes, and more feedings after diarrheal episodes. HSAs have also received training to notify estate medical services about cases of bloody diarrhea. Use of ORS packets was not promoted since supplies are erratic.

Health Worker Knowledge on CDD: Knowledge levels of HSAs and volunteers on danger signs is high for three key messages: sunken eyes, loss of skin elasticity, and sunken fontanelle. Knowledge of proper ORS preparation is high among both groups; cereal-based ORT has been promoted since ORS sachet supplies from MOHP are unreliable. Regarding advice to give mothers on what to do when a child has diarrhea, the volunteers most often responded to give extra fluids and take the child to the clinic; most

frequent responses from HSAs were to give extra fluids and continue breastfeeding. Most HSAs and volunteers also know to give extra food after an episode of diarrhea.

Knowledge on prevention of diarrhea was rather weak across both groups in contrast to the generally good knowledge on other key CDD messages. Washing hands, using latrines properly and boiling water were the most frequently mentioned responses among the HSAs and volunteers, but none were mentioned at a frequency that indicates key messages have been instilled. Greater emphasis on prevention in the health worker curriculum may address this deficiency.

CDD Activities: According to project records, attendance at health talks about diarrhea has been greater than for any other topic offered by volunteers and HSAs; 35,141 attendances were reported for the period from October 1994 through March 1997.

Findings - Home Management of Diarrhea: The number of children receiving the same or more breastmilk, food-based liquids and/or food has increased from the baseline figures of 62.7% (Thyolo) and 57% (Mulanje) to 73.9% and 78.1%, almost at target. In Thyolo, there was a slight decrease from baseline in the number of children treated with home-available fluids (including cereal-based ORT), from 84.5% to 76.0%; there was little variation between baseline (67.4%) and final (70.0%) in Mulanje.

There was a notable increase in the number of children receiving extra meals after recovery from an episode of diarrhea. from 67.4% and 55.6% for Thyolo and Mulanje, respectively, to 86.7% and 89.7% - beyond the target set in the DIP. This increase is notable in light of the significant percentage of KPC respondents who continue to provide less fluids - approximately 25% in both districts - and less food (Thy010 -36.7%; Mulanje - 30.5%). It is not improbable that those who now practice improved home management have attended health sessions on CDD, but attendance of individuals is not tracked. A system for recording individual attendance at health talks by topic would be unwieldy but would help in evaluating the health education program approach. Those mothers who are still practicing harmful measures, such as providing less food and fluids, may be those who do not attend the health talks. These mothers would be the main targets for a health education strategy: those who have self-selected to attend health classes are already motivated to improve health knowledge and practice.

Appropriate treatment-seeking practices have improved: 76% of mothers in Thy010 sought advice at baseline compared to 84.4% of cases at the final KPC survey; in Mulanje, 67.2% of mothers sought treatment at the beginning of the project compared to 85.9% at end-of-project. Treatment is most often sought at estate clinics or MOHP hospitals or clinics. HSAs have been trained to follow up and advise where to seek treatment in cases of bloody diarrhea. Improvements in appropriate treatment-seeking may be in part due to the project protocol as well as the high interest of mothers (as indicated by high attendance at health talks) in this area.

Key messages in management of diarrhea appear to be translating into practice by more mothers according to the KPC results. It appears that the health education approach, combined with treatment protocol, has been effective in producing positive results in this intervention area. An emphasis on prevention of diarrhea could possibly yield even more beneficial results.

c. Achievements related to Nutritional Improvement for Infants and Children

- *90% of children will be breastfed within their first eight hours after birth.*
- *10% of infants will be breastfed exclusively for their first four months.*

- 80% of mothers will know that the-v should start adding foods between four and six months.
- 60% of the mothers with children under-two will know to add food rich in Vitamin A.
- 70% of children 20-23 months are still breastfeeding.

Findings - Nutrition Strategies: HSAs have been trained to provide health education to mothers about the importance of exclusive breastfeeding and appropriate weaning practices; volunteers have received more limited training on nutrition practices so that they are able to effectively promote attendance at health talks. Key messages they were taught include the benefits of exclusive breastfeeding, appropriate age for weaning, and good feeding practices (e.g., appropriate foods for different age groups, supplementing with Vitamin-A rich foods).

Health Worker Knowledge: Following the basic training, refresher trainings for health workers after the mid-term evaluation emphasized weaning practices. Correct responses from almost all of the HSAs and volunteers surveyed regarding when other foods/liquids should be introduced indicate good knowledge on age of weaning. **There** was less knowledge on proper feeding practices: 75% of HSAs cited “feed children at least four times a day,” with other correct answers mentioned by only 50% or fewer. The highest response rate for any correct answer from volunteers was only 50%, for supplementing child’s meals with Vitamin A- and iron-rich foods; only 25% of HSAs mentioned supplementation.

HSAs also received refresher training focused on breastfeeding to inculcate in them the benefits. Cultural resistance to exclusive breastfeeding, even by health workers, has been a barrier to improving nutritional practices in Malawi. Messages taught included: protection from diarrhea, nothing else is needed for the first four months, breastmilk production is stimulated, and pregnancy is delayed. 88% of HSAs surveyed responded that exclusive breastfeeding protects the baby from diarrhea, but frequency of responses on other benefits were notably low. Likewise, the volunteers cited protection from diarrhea most frequently (69%) with very low responses for other benefits. These response rates suggest that health workers need further training on breastfeeding and proper feeding practices and that nutritional messages **need** to be strengthened within the health worker curriculum.

It is notable that messages about breastfeeding related to diarrhea and those related to other benefits of breastfeeding (e.g., delays pregnancy) seem to be processed vertically and compartmentalized separately by the health workers as well as the mothers. Project HOPE staff posit that there are too many key messages for HSAs to impart on each health topic. Low literacy skills among mothers present a problem in that they cannot absorb an overload of health information in one health session; HSAs are confronted with deciding which messages to emphasize. Because there exists a cultural barrier to exclusive breastfeeding, messages promoting it tend to be lower priority during health talks. Given this, a revision in the health worker curriculum on breastfeeding that integrates all of the information but gives clear messages in a workable quantity may help the HSAs and volunteers more effectively impart knowledge to mothers.

Important about the message is also the medium with which it is conveyed. Community groups commented positively on the few songs, dramas and videos they have seen. Currently, the health workers tend to resort to a lecture method most often. Strengthening health workers’ communication and teaching skills to expand their repertoire of methods may help raise interest in health education sessions from the community. Also using multiple media to convey key messages may help make the messages more memorable.

Nutrition Activities: During the final evaluation survey, HSAs and volunteers reported carrying out a range of nutrition-related activities. HSAs most frequently reported conducting group health talks (81%) and conducting food preparation demonstrations (56%). The latter is surprising since health workers did

not receive specific training or materials for food demonstrations. Volunteers did not report carrying out any nutrition-related activities at a frequency higher than 50%, for talks to individuals.

Attendances at nutrition health talks numbered fewer than any other topic area with the exception of family planning, totaling 13,359 over the period for which data are available. Data are not available on the number of health talks per topic given by HSAs, but Project HOPE staff reported to the evaluation team that fewer talks were given on nutrition. This may be because HSAs determine the topic of a particular health talk according to perceived needs of the community. For example, if there has been a recent outbreak of diarrhea, the HSAs will give a talk about management of diarrhea or sanitation. Topics of health talks are somewhat arbitrary, though HSAs have been instructed - though not specifically monitored - to give health talks on all of the topics on which they have been trained. A more structured approach to determining the number of health talks per topic may address this issue. Helping select topics for health talks could possibly be included as part of the supervisory responsibilities of the estate medical staff.

Increasing quantity as well as quality of food requires either land for gardens and/or cash to buy food. Estate workers suffer seriously from a lack of both resources, a situation which may also constrain efforts of health workers to engage in more nutrition-related activities. It is possible that low attendance at nutrition health talks was affected by the fact that families have few alternatives to practice the nutrition advice given by health workers. These factors must be considered in the health education curriculum as well. Advice given must be practical for learners to apply.

Findings - Exclusive Breastfeeding: Breastfeeding within the first 8 hours after birth is practiced by 90.7% and 94.0% of mothers in Thy010 and Mulanje, respectively. This is an improvement over baseline in Mulanje (83.6%); baseline data are not available for Thyolo. Exclusive breastfeeding rates were high at baseline - 33 % for Thyolo and 26% for Mulanje - compared to the national rate (5%). The final KPC indicates a decrease to 11.0% and 6.0% for Thy010 and Mulanje, respectively, despite improved knowledge rates of mothers about when other foods should be added (between 4-6 months) to a child's diet - an increase from 58% to 83.7% for Thyolo and from 53.3% to 82.6% for Mulanje. It appears that the cultural barriers to exclusive breastfeeding remain strong even though health education efforts have raised awareness of benefits to mother and child. The project target of 40% exclusive breastfeeding was ambitious given that little is known about the barriers and how to overcome them. Further information is needed about how to overcome the cultural barriers in order to design appropriate interventions. Focus group discussions to gain information about the cultural barriers were mentioned as a potential activity for this intervention in the DIP but were not carried out. Considering the difficulty of changing practices even as knowledge is increasing about benefits of exclusive breastfeeding, focus group discussions would be more appropriate than ever. Future projects that aim to impact on exclusive breastfeeding should be based on more sound information gained through thorough study.

Findings - Appropriate Weaning Practices: Knowledge of mothers on proper feeding practices has improved significantly: over 75% of mothers know to add food rich in Vitamin A for their children aged 6-23 months compared with baseline KPC figures of 25% and 31% for Thy010 and Mulanje, respectively, surpassing the target of 60%. The number of mothers who know when to start adding food has also increased from baseline in Thyolo (58%) and Mulanje (53.3%) to 83.7% and 82.6%, respectively. When asked which foods should be added, fruits were mentioned most frequently, in approximately 60% of responses; leafy green vegetables were mentioned next at approximately 33% of responses. The final KPC survey results show that mothers are still breastfeeding their 20-23 month children at a rate of 93.7% in Thy010 and 97% in Mulanje compared to 50% and 45% at baseline. Knowledge on weaning practices appears to have increased considerably based on these results, and practice of continued breastfeeding is notably improved within a short period. Health education is the likely reason for these improvements.

d. Achievements related to Growth Monitoring

- *90% of children under two will have a Road-to-Health card.*
- *90% of children under two will have been weighed at least once during the last two months.*

Findings - Growth Monitoring Strategies: Growth monitoring takes place monthly at the Under 5 clinics. Project target populations can obtain services, including growth monitoring, at 16 Under 5 clinics on the estates in Thyolo and 3 MOHP clinics near the Mulanje estates.

HSAs have been trained to assist with growth monitoring sessions and to follow up with cases identified as malnourished through home visits during which they provide counseling. All health workers have received training in nutrition and growth monitoring. HSAs teach mothers about good nutritional practices during health talks. In Thyolo, volunteers concentrate on promotion activities while HSAs maintain the rosters of the target children. In Mulanje, volunteers promote participation in Under 5 clinics as well as monitor growth by checking cards of eligible children on a monthly basis. Health workers have been trained in the following protocol: if a volunteer observes no weight gain for two consecutive months or there is weight loss, the child is referred to a HSA, who organizes a visit to the home of the child, along with the volunteer, to give a health talk and to screen for causes of malnutrition. The HSA advises to send the child for screening at the nearest clinic where an appropriate course of action can be decided by medical staff. The HSA continues follow-up to ensure that medical advice is followed.

Health Worker Knowledge: Knowledge among HSAs on signs of malnutrition is generally low, as indicated by their low frequency of responses for any one sign of malnutrition which they have been taught in trainings; apathy was mentioned most frequently by 50% of HSAs surveyed. This is surprising since the HSAs assist with weighing at the Under 5 clinics where low weight would be a key indicator of malnutrition. 75% of HSAs surveyed said that they primarily advise on feeding practices and refer the case to the nearest clinic when counseling cases of malnourished children, in line with the protocol which is taught in their training.

Volunteers were not surveyed for their knowledge on signs of malnutrition since they are not expected to provide counseling to mothers, only to refer to HSAs those cases where no growth is observed (by checking cards) for two consecutive months.

Growth Monitoring Activities: Both HSAs and volunteers reported that they use the rosters for growth monitoring purposes more than for any other activity; 69% of HSAs and 88% of volunteers reported using the rosters for growth monitoring

HSAs report giving group health talks more frequently (81%) than any other nutrition-related activity, though reported attendance at health talks about nutrition is the second lowest of the topics taught. 50% of the volunteers reported that health talks to individuals was their main nutrition-related activity. Only 25% of community groups surveyed by the evaluation team reported volunteer activity in nutrition and growth monitoring, and only about 50% mentioned these as HSA activities. There appears to be a general lack of interest in nutrition topics based on this information,

Findings - Road-to-Health Card Retention: Baseline and final KPC survey rates for card retention are static: 91.0% for Thy010 and 86.3% for Mulanje. These rates meet the target which was set in the DIP.

Findings - Growth Monitoring: The final KPC survey found that 75% of children with Road-to-Health cards had been weighed at least once during the last two months, indicating no significant change since baseline. This is below the target of 90%.

As the findings for child nutrition also indicate, knowledge and practice levels among HSAs and volunteers suggests that the health worker curriculum needs to strengthen messages about nutrition and the link between growth monitoring and nutrition. Promotion and follow-up activities have not been carried out consistently or at the expected level in spite of availability of Road-to-Health cards and use of rosters to identify target groups and high-risk cases; communities do not perceive a high level of nutrition-related activities carried out by health workers. The lack of sustained and concentrated effort on nutrition may be one reason that the target for growth monitoring was not met.

e. Achievements related to Nutritional Improvement for Pregnant Women

- *70% of pregnant women eat more than usual during their pregnancy and after delivery.*

Findings - Maternal Nutrition Strategies: Health education for mothers provided by the HSAs has been the key approach to improving maternal nutrition; volunteers promote attendance at ante-natal clinics and conduct health talks where information on maternal nutrition is provided. Key messages focus on the need to eat more and better quality food in order to have a healthy baby and thriving children. HSAs have been trained to use participatory learning techniques in order to more effectively teach illiterate mothers.

Health Worker Knowledge: 88% of those HSAs interviewed responded correctly when asked about the need for pregnant women to eat more during pregnancy, indicating good knowledge in this area. Knowledge of volunteers was not assessed by the evaluation team since volunteers are not responsible for giving health talks.

Maternal Nutrition Activities: HSAs most often provided health talks on maternal nutrition and care at antenatal clinics. However, women who attend the antenatal clinics are already pregnant, in which case messages may be reaching them too late; many important maternal nutrition messages are appropriate for adolescent girls and women who are not yet pregnant. These women and girls represent missed opportunities to have impact on maternal nutrition. Providing health *talks* to *all* women of child-bearing age may have a greater impact on maternal nutrition.

During the final evaluation survey, 75% of HSAs and 80% of volunteers reported using their rosters to target women for antenatal care activities (e.g. attendance at clinics, TTV). Volunteer and HSA involvement in nutrition and antenatal activities was mentioned by fewer than 50% of the communities surveyed, but that may be because those who were interviewed did not attend antenatal clinics where activities tend to take place,

Findings - Nutritional Practices during Pregnancy: The final KPC figures for the number of women who are eating more during pregnancy and after delivery indicates almost no change from baseline (29.0% for Mulanje; no baseline for Thyolo); the end-of-project rates are 36.0% for Thy010 and 32.3% for Mulanje, well below the target of 70%. Over 40.0% of women report that they eat less than usual during pregnancy.

Health care workers have **good** knowledge on maternal nutrition but this knowledge has not translated into practice by women in the Project HOPE project area, as anticipated by the ambitious target set in the DIP. Nutrition health talk attendances have generally been low compared to other topics covered by the **HSAs**, though available project data make it difficult to tell if health workers are giving fewer talks on nutrition or if there is less interest from mothers in attending health talks on nutrition (see discussion regarding nutrition health talks in section on improving child nutrition).

There are other factors which may have impacted on the results of this intervention. Husbands figure largely in the cultural practices affecting maternal nutrition, such as family food distribution, yet no health education on maternal **and** child nutrition is targeted to them. Men are not a target group for improving child or maternal nutrition for **USAID**. However, it is clear that men need to become more knowledgeable about the nutritional needs of these vulnerable groups to improve **intrafamily** food distribution and to increase family food security. Little information exists regarding the basis for the various cultural beliefs and practices about maternal nutrition, such as taboos on certain foods. Lack of land on which to plant gardens was cited **by** some communities and project staff as a reason for food scarcity which, in turns, affects food availability for better nutrition. Project HOPE has been able to convince management of most estates to allow compound residents to plant small kitchen gardens, a practice which was discouraged previously, but it is too soon to assess if this policy change has resulted in production and consumption of more nutritious diets. Strategies to improve maternal nutrition must consider these multifarious factors, incorporating **methods** for reaching all women of child-bearing age as well as husbands, and looking at options for increasing food production and availability.

f. Achievements related to Prevention of Vitamin A Deficiency

- *60% of mothers with children 4-23 months will know to add foods rich in Vitamin A to their children's food.*
- *40% of children between 12-23 months will have received Vitamin A capsule within the last six months*

Findings - Strategies to increase Vitamin A Intake: **HSAs** have been trained to assist estate health staff with distribution of Vitamin A capsules during Under 5 clinics and to provide health talks on the importance of Vitamin A supplementation. **HSAs** and volunteers are responsible for promoting attendance at Under 5 clinics where the capsules are administered, using rosters to target eligible population. Vitamin A-rich foods are promoted by health workers, and Project HOPE has advocated with estate managers to allow compound residents to plant gardens near their homes, a practice which has been discouraged in the past.

Health Worker Knowledge: In response to a survey question about good feeding practices for children, only 25% of **HSAs** cited supplementation with Vitamin A-rich foods, while 50% of the volunteers mentioned it, more frequently than any other **good** feeding practice. Knowledge level of health workers is difficult, to assess on the basis of this question, **but awareness about** Vitamin A in relation to some other nutrition messages (e.g., age of weaning) appears low.

Vitamin A Activities: An increase in the number of children receiving Vitamin A capsules has **occurred in** spite of erratic supplies of Vitamin A at estate clinics. Though the MOHP has had relatively steady supplies of Vitamin A throughout the period of the project, **some** of the estate clinics reportedly do not take advantage of these free supplies as they do for other types of medicines (e.g., S-P for malaria), resulting in inadequate stocks for distribution at Under 5 clinics. However, the increase in the number of Under 5

clinics - from 16 to 19 - may have helped facilitate better distribution. During the final evaluation survey, none of the estate medical staff nor either of the District Health Management Teams mentioned Vitamin A among the various activities which they were aware had been undertaken through the CSX project. Vitamin A activities do not seem to be valued or perceived to the same degree as other child survival interventions. Project HOPE staff reported to the evaluation team that Vitamin A distribution was a lower profile activity at the beginning of the project because there were fewer Under 5 clinics, where distribution takes place.

Vitamin A has not been separated from other nutrition topics in training attendance records, thus it is not possible to determine the degree to which Vitamin A has been covered through health education sessions. In any case, nutrition health talks have generally received less attention than other health topics, with the exception of family planning, as discussed above in the above sections 1.c (Nutritional Improvement for Infants and Children) and 1.e (Nutritional Improvement for Pregnant Women).

Findings - Vitamin A-rich Foods: Despite low health worker emphasis on nutrition compared to other activities, the final KPC survey results show a significant increase in the number of mothers of 4-23 month children who know to add Vitamin A-rich foods to their children's diet, from 25% and 31% in Thy010 and Mulanje, respectively, to 61.3% and 60.3%. This increase meets the target set in the DIP.

Findings - Vitamin A Distribution: A significantly higher rate of children had received Vitamin A capsules at the time of the final KPC survey (Thy010 - 40.3%; Mulanje - 35.4%) than at baseline (Mulanje - 16%; no data available for Thyolo) in spite of erratic supplies at some estate clinics. This meets the target set in the DIP and represents commendable progress. The MOHP held a campaign to raise awareness and coverage about polio and Vitamin A in October 1996, at which point many children were administered Vitamin A. The estate clinics were actively involved in this campaign, through which children residing on the estates benefited.

g. Achievements related to Maternal Care and Family Planning

- *40% of mothers with children under two know at least two danger signs of pregnancy.*
- *60% of mothers with children under two will have a maternal health card.*
- *60% of mothers with children under two who have a maternal health card will have made at least two or more antenatal visits for their last pregnancy.*
- *25% of mothers with children under two not desiring children in the next two years will be using modern contraceptives.*

Findings - Maternal Care and Family Planning Strategies: HSAs and volunteers have been trained to provide health education to mothers on the importance of prenatal care and the danger signs of pregnancy and to motivate attendance at antenatal clinics. Health workers use rosters to target and track eligible women and promote their attendance at antenatal clinics. Health workers are also responsible to assist in arranging estate transport to the District hospital for those pregnant women exhibiting danger signs during pregnancy. Increasing the number of antenatal clinics in the project area has also been a key strategy for improving maternal care.

Project HOPE received a grant from the USAID Support to AIDS and Family Health Project (STAFH) in April 1995. Many of the family planning and AIDS prevention activities which were planned under the CSX project were transferred to the STAFH project, including training for estate medical staff to diagnose and treat STDs and training and support for CBDs and core providers to improve contraceptive

distribution in the project area. Estate medical staff have received training as core family planning providers. Training for HSAs and volunteers in family planning and HIV/AIDS has continued under the auspices of CSX, as well as community-based education and promotion. Their family planning-related responsibilities include distribution of condoms supplied from MOHP.

Health Worker Knowledge on Maternal Care and Family Planning: **HSAs** most frequently mentioned headaches (81%), bleeding (75%) and swelling of hands and feet (75%) in response to a survey question about the danger signs of pregnancy. Knowledge in this area seems fair. (Questioning about danger signs in pregnancy was inadvertently left out of the volunteer survey questionnaire.) **HSAs** and volunteers answered knowledgeably about the benefits of family planning, indicating good understanding of the positive impact on family welfare. The survey also found a high level of knowledge regarding modern methods of family planning: pills were mentioned by all of the health workers who were surveyed; other methods mentioned by more than 75% of health workers were IUD, injectables and condoms,

Of 8 estate medical staff who were interviewed, 7 had been trained in family planning by Project HOPE. Post-test scores following the training indicated an improved and good level of knowledge on the basics of family planning.

Maternal Care and Family Planning Activities: Six of the 8 estate medical staff interviewed responded that antenatal care and family planning clinics were the most important activities of Project HOPE's program. Both District Health Management Teams also mentioned family planning as a key activity of Project HOPE; the Mulanje District Health Management Team stated that it was one of the most effective activities of the CSX project.

The number of antenatal clinics in the project area has increased significantly: in Thyolo, the number of clinics increased from 5 to 13 while in Mulanje the increase was from 3 to 6 clinics. The increase in the number of family planning clinics is also remarkable. In **Thyolo** there were no clinics at the start of the project; now there are 5 static clinics and 1 mobile clinics (through the core providers). In Mulanje the number has increased from 2 clinics to 6 static clinics and 6 mobile clinics. The increase in the number of clinics correlates to the increase in the number of staff who have been trained to provide family planning services, largely through the STAFH project. However, the **HSAs** and volunteers coordinate with the medical staff and core providers to ensure that communities are linked to and avail themselves to the antenatal care and family planning services. The activities and objectives of the STAFH project and CSX are complementary, and project beneficiaries have gained from the improved expertise and services that both projects have supported.

Communities who were surveyed during the **final** evaluation cited family planning as one of the areas in which **HSAs** and volunteers have been most active. Group health talks, usually given at antenatal clinics, are the main activity, as reported by **HSAs** (94%) and volunteers (56%) who were interviewed. This sits in contrast to the low level of **attendances** reported for family planning health talks, which are fewer than for any other health education topics. Nonetheless, practice has increased. Individual counseling was reported as a family planning activity by 38% of **HSAs** and 44% of volunteers. Further study to determine effectiveness of various health education approaches for family planning is warranted, including an investigation of the gender aspects. Currently, 50% of **HSAs** are males, a fact which may present a barrier to health education on reproductive health matters, particularly on an individual basis since it is culturally unacceptable for unrelated males to meet alone with married women. The MOHP has recently introduced Interpersonal Communication and Counseling (IPCC) to emphasize individual counseling vs. group talks. Further training for health workers in IPCC techniques may increase the effectiveness of education on

family planning and maternal care, but acceptability of male HSAs providing such training should be determined before any large-scale effort is initiated.

Accessibility to and availability of services has improved dramatically as has use of services among the target group. It is reasonable to conclude that Project HOPE's initiatives to increase the quantity and quality of care have been successful based on responses from key players and beneficiaries and improved practice rates.

Findings - Maternal Care: 39.7% of respondents in Thy010 and 30.8% in Mulanje had maternal health cards at the time of the final KPC survey, well below target. Of those, 96.8% (Thyolo) and 93.7% (Mulanje) had had at least 2 antenatal visits during their last pregnancy, a major increase over the baseline of 43% (available for Mulanje only). Regarding their ability to name any danger signs during pregnancy, women surveyed most frequently mentioned bleeding (23.7% - Thyolo; 29.7% - Mulanje); other danger signs mentioned were swelling of hands and feet, headaches and abdominal pain. As was found during the mid-term evaluation, knowledge in this area remains low. Though TTV2 coverage rates appear to have improved over the course of the project, maternal nutrition indicators also remain low. In general, there is not much indication of improved maternal care practices except in the number of antenatal visits and TTV coverage, which is only known for the minority of women holding maternal health cards.

Project HOPE staff and MOHP evaluation team members speculate that there is not as much importance attached to retention of maternal health cards as for Road-to-Health cards. If a child's card is lost, MOHP policy is to start the child's immunizations **from** the beginning, which is bothersome for the mother; if a mother loses her card, there is no similar disincentive. Until such time as maternal card retention rates improve, it will be difficult to assess maternal care practice levels with accuracy. Activities to improve card retention have not been specifically designed but are warranted.

Findings - Modern Contraceptive Usage: There has been a significant and commendable improvement in the contraceptive usage rate among women with children under two. 34.0% of Thyolo KPC respondents and 27.% of those in Mulanje were currently using either injectables, pill, tubal ligation, or condom, well above baseline of 12.7% for Mulanje, the only district for which baseline data is available. It is reasonable to conclude that the greater information about family planning and accessibility to services has contributed to this increase and can be attributed to Project HOPE's initiatives in this regard.

Health workers, medical **staff** and beneficiaries alike appear to place more emphasis on family planning than on maternal care, if knowledge and practice differences are considered, even with more or less equal accessibility to the two types of services. The felt need for family planning appears to be greater, perhaps because health workers and mothers see greater benefits to their whole family; maternal care may be seen more narrowly as providing benefits to the mother. It may be worthwhile to test a revised maternal care health education component that expands the benefits of maternal care to include benefits for the whole family, including husbands.

h. Achievements related to ALRI Case Management

- *50% of mothers will seek early treatment (within 24 hours) for child with high fever, cough, rapid or difficult breathing (to be measured with a clinic-based survey).*
- *75% of estate health workers will be managing ALRI cases according to MOHP/WHO guidelines.*

Findings - ALRI Strategies: Project HOPE has trained health workers in identification and referral of ALRI cases; health workers have also provided health education to mothers about how to recognize the danger signs and appropriate treatment of ALRI. In October 1995, Project HOPE carried out exit interviews with mothers who sought treatment for their children at estate medical clinics in order to assess treatment-seeking behaviors and quality of care provided; results were used to design activities that would improve both these crucial areas related to ALRI management. Estate medical staff were then trained in case management according to WHO/MOHP guidelines in order to improve the quality of care they provide and ALRI was included as a topic in health worker refresher training.

Health Worker Knowledge on ALRI: At the mid-term of the project, health worker knowledge was good only on one symptom of ALRI: difficult breathing/indrawing. Responses during the final evaluation survey indicate that health workers now also recognize rapid breathing as an ALRI danger sign, though other signs are still mentioned infrequently.

Knowledge on what advice to give mothers to treat ALRI appears to have improved slightly since the mid-term of the project. Advising to take the child to the clinic is still the most frequent response given by HSAs (94%) and volunteers (75%), but other advice is also given. HSAs in particular know to advise on continued breastfeeding (50%) and keeping the child warm (38%); volunteers only mentioned keeping the child warm (56%).

Health Worker Activities for ALRI: 88% of HSAs and 63% of volunteers report that they conduct group health education on ALRI, as planned within the strategies for this CS intervention.

Findings - Appropriate Treatment-Seeking Behavior: Among mothers whose children exhibited danger signs of ALRI within the two weeks prior to the final KPC survey, 94.8% in Thy010 and 89.75% in Mulanje reported that they sought treatment, more or less the same as baseline findings. Respondents were not specifically asked about the timing of treatment-seeking. 85.7% and 66.9% in Thy010 and Mulanje, respectively, sought treatment at either an estate medical clinic or district hospital, where treatment is presumed to be by trained medical personnel. Mothers surveyed recognized difficult breathing as a danger sign, followed by fever and cough, more often than at baseline.

Findings - ALRI Management: At the mid-term, estate medical staff were observed to correctly assess ALRI patients in only 4% of cases. Since then, Project HOPE provided ALRI case management training to medical staff. In Thyolo, 28 of the 30 estate medical staff were trained in ALRI cases management according to WHO/MOHP algorithms; in Mulanje, 10 of 11 were trained. Post-test training scores showed marked improvement in knowledge levels. 7 of the 8 estate medical staff surveyed during the final evaluation reported that the training they had received from Project HOPE had better prepared them to manage after the CSX project concludes.

Effectiveness of this intervention is difficult to assess without conducting a follow-up clinic-based survey to observe case management skills of providers and home treatment practices, including use of drugs and timing of treatment-seeking. However, knowledge levels of estate medical staff, health workers and mothers have all increased as a result of training received during the project.

i. Achievements related to Control of Malaria

- *80% of women with children under two will know how malaria is spread and how it can be prevented.*
- *80% of women with children under two seek medical treatment for child with a fever of unknown origin/presumptive malaria.*

Findings - Malaria Control Strategies: Health education is the main approach to addressing the problem of malaria. HSAs and volunteers give health talks on prevention and treatment of malaria to mothers, advocating that mothers take their children with fever to estate medical clinics; presumptive fever without any apparent cause is treated as malaria in Malawi. Health workers also impart information on home management of malaria. An operations research project in Thyolo on cost-effectiveness of impregnated bednets to control malaria was carried out concurrently; the results of the research have not yet been released and therefore could not be incorporated into project activities as was considered a possibility in the DIP.

Health Worker Knowledge on Control of Malaria: Health workers who were surveyed during the final evaluation demonstrated good knowledge on signs and symptoms of malaria. All key symptoms were mentioned by both HSAs and volunteers, with fever, headache, and vomiting mentioned most often. HSAs and volunteers also know the key home management messages generally well, including taking the child with fever for treatment. Knowledge on measures to prevent malaria are less well-ingrained; clearing surroundings was mentioned most frequently by HSAs (100%) and volunteers (88%). Other preventive measures were mentioned at frequencies of 56% or less for HSAs and 38% or less - if at all - by volunteers.

Malaria Control Activities: 88% of HSAs report that health talks to groups (88%) and helping to clean surroundings (56%) are their two main activities related to malaria control. Group health talks were also mentioned most frequently by volunteers (63%) with clearing surroundings and talks to individuals less often.

Findings - Malaria Prevention Knowledge: Malaria was mentioned by communities almost as frequently as diarrhea when asked by the final evaluation team which were the biggest health problems facing them. Attendances at malaria health talks rank third among the 8 health topics on which health workers provide education. Correct responses from mothers at mid-term on how malaria is transmitted were 50% for Thy010 and 61% for Mulanje; the final KPC results were 71% for Thy010 mothers and a static 61% in Mulanje. These results are slightly below the DIP target but show a steady increase, at least in Thyolo. Most frequently mentioned steps for preventing malaria were: clear surroundings (38.3% - Thyolo; 31.3% - Mulanje) and fill in water logs (39.3% - Thyolo; 32.7% - Mulanje). Use of repellents and nets were mentioned by less than 15% of respondents. The District Health Management Team in Mulanje commented that malaria is one of the least effective activities under the project, indicated by a continued low understanding about malaria transmission and prevention,

Findings - Appropriate Treatment-seeking Behavior: Over 90% of mothers sought treatment for their children with fever, according to final KPC results. Of these, 87.6% and 78.3% of mothers in Thy010 and Mulanje, respectively, sought treatment at an estate clinic or MOHP health facility where treatment is presumed to be appropriate. Thus, the DIP target for appropriate treatment-seeking was met. As no baseline information was available, it is not possible to assess whether treatment-seeking practices have changed as a result of project interventions.

j. Achievements related to HIV/AIDS Prevention

- *60% of mothers with a child under two will know at least three ways to prevent HIV transmission.*
- *80% of compound watchmen knowledgeable about HIV transmission and prevention.*
- *Increase the number of AIDS Youth Clubs from two to ten.*
- *90% of estate medical staff will be knowledgeable about HIV transmission and prevention.*
- *90% of clinic based health workers will be trained in STD case management using the syndromic approach.*

Findings - HIV/AIDS Prevention Strategies: Health education aimed at a variety of target groups and audiences has been the approach for increasing knowledge on HIV/AIDS prevention. Health workers have received training in HIV/AIDS transmission and prevention in order to convey key messages to community leaders and members. Key messages conveyed through health talks, dramas and videos are to have only one partner and to use condoms. In addition to basic training on HIV/AIDS, estate medical staff have received training in use of the STD syndromic approach for diagnosing and managing STDs as a means of improving quality of care provided at the estate clinics; this technical training was provided under the USAID-funded Support to AIDS and Family Health Project. (See above section g. - Maternal Care and Family Planning - for discussion of CSX/STAFH complementary project activities.)

Knowledge on HIV/AIDS Prevention: Basic training for health workers included information on HIV/AIDS transmission and prevention. Knowledge on transmission of HIV/AIDS is good among HSAs and volunteers who were surveyed during the final evaluation. Most health workers cited sexual intercourse with an infected individual and use of unsterile skin-piercing instruments as key modes of infection. 50% of HSAs also mentioned blood transfusions and mother-to-child transmission as other possible modes. 88% of HSAs mentioned using condoms as a preventive measure while only 50% of volunteers mentioned it. Abstinence from sex, not sharing skin piercing instruments, and having a faithful sexual relationship with an uninfected person were also cited by more than 60% of health workers.

183 compound watchmen were given a one-day orientation about HIV/AIDS. Watchmen are responsible for the welfare of the compound residents and are charged with advising them on a range of issues that can affect the community. It was hoped that watchmen would pass on key messages about HIV/AIDS during their regular meetings with compound residents, particularly men. Pre- and post-test results - which were assessed orally since many watchmen are illiterate - showed that the training effectively raised their knowledge and awareness about HIV/AIDS. The extent to which they have passed on information to the community has not been monitored.

HIV/AIDS Prevention Activities: 94% of HSAs and 69% of volunteers report giving group health talks as their main HIV/AIDS activity, followed by talks to individuals (50% of HSAs; 1% of volunteers). Attendances at HIV/AIDS group health talks rank fourth among topics discussed by the health workers, and Project HOPE staff perceived that there is a high level of interest in the topic.

Project HOPE staff have provided training to youth leaders and school teachers associated with 36 Anti-AIDS clubs - 12 in Mulanje and 24 in Thy010 - to help them initiate school-based clubs; the clubs were consequently registered with the Regional AIDS Office. Further training for youth leaders included developing skills to educate about AIDS through drama, songs, poetry, debates, and campaigns. Many of the clubs have reportedly carried out active programs, though no assessment of effectiveness of the clubs

has been carried out under this project evaluation: an evaluation of this intervention is planned through Project HOPE's STAFH project under which most family planning and AIDS prevention activities now fall.

All of the estate medical staff have been trained in HIV/AIDS under the STAFH project. In addition, 43 estate medical staff were trained in use of the STD syndromic approach to diagnosis and treatment, covering all estates participating in the CSX project. Cost of drugs for treating STDs is a problem for most estate clinics (as well as for MOHP clinics); a few estates have been able to stock STD drugs but in many cases the clinics refer the patients to the district hospital when treatment is required. The District Health Management Team in Mulanje reported a noticeable increase in STD patient referrals as a result of the HIV/AIDS activities of Project HOPE.

Findings - HIV/AIDS Prevention: Mothers interviewed during the final KPC survey most frequently mentioned skin-piercing instruments (62.3% - Thyolo; 53.3% - Mulanje), sexual contact with an infected person (48.7% - Thyolo; 44.3% - Mulanje), and sexual contact with multiple partners (41.0%; 52.3%) as key modes of AIDS transmission; toothbrushes were mentioned by about 20% of respondents. Mother-to-baby transmission was mentioned by less than 3% of mothers, Abstinence (64.0% - Thyolo; 66.0% - Mulanje), remaining faithful to one partner (21.7% - Thyolo; 25.3% - Mulanje), and condom use (24.7% - Thyolo; 13.3% - Mulanje) were mentioned as ways to prevent AIDS. 49.0% of Thyolo respondents mentioned avoiding skin-piercing instrument while only 1.3% of Mulanje respondents named this. These figures are close to those found during the mid-term survey and at baseline. Thus, there has been little if any change in knowledge levels at the community level in spite of interest in and training on the topic.

Objectives under this intervention are stated as project outputs rather than in terms of impact on behavioral change. Output objectives have been achieved as **planned**, but impact on increasing knowledge of target group members is so far negligible. The types of behavioral changes needed to impact on the HIV/AIDS epidemic in Malawi will take much longer than a three year project.

2. Project Expenditures

Overall expenditures for Malawi were \$20,401 over the portion of the COAG budget originally set aside for Malawi. However, since the agreement contains two other countries, Nicaragua and Haiti, cost savings in these countries were able to cover the amount. The only major line item discrepancy for Malawi was in Travel. Travel expenses exceeded expectations due to longevity leave and relocation benefits that were provided to the country director according to contractual agreement. Other travel expenses were incurred due to the extensive repair cost of vehicles due to road conditions, Consultancies were underspent due to the availability and effective use of on-site professional consultants.

The pipeline analysis can be found in Appendix C

3. Lessons Learned

a. Program Approach

Emphasis on Health Education: The project's health education approach assumes that many target group members will attend health talks given by the health workers. The final KPC results, which indicate that 61.0%-67.7% of mothers with children under 2 years had attended health talks within the last 6 months, shows that this has been a correct assumption. The potential for onward sharing of information gleaned from health talks may provide insights into other channels for promoting behavior change.

There is a direct correlation between **some of the** key messages given through health education and child-protective behaviors **being** practiced. The project emphasis on health education appears to have been effective in improving health practices in areas where mothers have a measure of control and **support** services are available. For example, EPI drop-out rates have decreased **and** more mothers are covered by TTV2; it is easier to obtain vaccinations because there are more Under 5 and antenatal clinics **in** the area, and health workers have heavily promoted EPI **through** health talks. Continued breastfeeding for children 20-23 months has improved - a practice well within control of mothers. And contraceptive prevalence rates have improved dramatically along with increased knowledge about modern methods and availability of services. The Mulanje District Health Management Team, when interviewed during the evaluation, expressed that Project HOPE has played a facilitative role and has created demand for services through health education and community outreach.

Some health messages are more difficult for target groups to practice. This has been particularly noticeable with maternal and child nutrition messages. Increasing quantity as well as quality of food requires either land for gardens and/or cash to buy food. Estate workers suffer seriously from a lack of **both** resources, a situation which may also constrain efforts to improve nutritional practices. It is possible that low attendance at nutrition health talks was affected by the fact that families have few alternatives to practice the nutrition advice given by health workers. Advice given must be practical for learners to apply.

Areas in which health worker knowledge and/or attitudes are weak also logically affect knowledge and practice levels of mothers, as was found with the exclusive breastfeeding, diarrhea prevention interventions, and maternal nutrition interventions. In some cases, as with nutrition messages, it appears that cultural beliefs and practices may be the basis for creating barriers to improvement in the intervention area. In order to ensure that health messages appropriately address cultural beliefs, more information about the cultural basis for harmful practices is needed through in-depth study. Health curricula should incorporate findings of research in order to convey messages appropriately.

Often the message is the medium. Community groups commented positively on the few songs, dramas and videos they have seen. Currently the health workers tend to resort to a lecture method. Strengthening health workers' communication and teaching skills to expand their repertoire of methods may help raise interest in and effectiveness of health education sessions.

Project HOPE staff have suggested that there are too many key messages for HSAs to impart on each health topic. Low literacy skills among mothers presents a problem **in** that they cannot absorb an overload of health information in one health session; HSAs are confronted with deciding which messages to emphasize. This issue requires review, especially regarding breastfeeding, for which messages are given in several intervention areas. Currently, health workers and mothers seem to process and compartmentalize breastfeeding messages separately. The curriculum needs to provide clear messages in a workable quantity so that HSAs and volunteers can more effectively impart knowledge to mothers.

Topics of health talks are chosen somewhat arbitrarily by the **HSAs**, though they have been instructed to give health talks on all of **the topics** on which they have been trained. A more structured approach to determining the number of health talks per topic may address this issue. Helping select topics for health talks and ensuring that all are covered could possibly be included as part of the supervisory responsibilities of the estate medical staff.

Attendance of individuals at health talks has not been tracked. A system for recording individual attendance at health talks by topic would **be** unwieldy; however, some mechanism to evaluate the health

education program approach would be useful. Those mothers who are still practicing harmful measures, such as providing less food and fluids to children with diarrhea, may be those who do not attend the health talks. These mothers should be the primary targets for a health education strategy. Those who have self-selected to attend health classes are likely to be already motivated to improve health knowledge and practices. In lieu of individual health talk attendance records, insights into this issue could be gained through sampling of individuals that fall into these and other categories of interest to determine the consistency of correlation in health talk attendance/non-attendance with exhibited behavior.

Health Information System: Use of the various components of the health information system seems fairly well established and understood by most of the estate medical staff and health workers. However, the evaluation team found that most of the volunteers' rosters were not maintained according to standards set in training even though most could explain the purpose of keeping the roster and name which interventions rosters are used for targeting. Factors may include the shorter length of time and less training received by the volunteers in use of rosters in comparison to HSAs. It may also be a factor of lower educational level of the volunteers as well as supervision from different levels of health workers. Specific reasons for the lack of precision in record-keeping would need to be explored to determine if it is feasible to rely on community-level workers to provide basic HIS data and, if so, what further training is needed to develop record-keeping skills.

Supervision: Post-test scores of estate medical staff indicated improved knowledge on case management for ALRI and STDs following training. The Mulanje District Health Management Team commented that they now receive more STD case referrals from the estates since the STD training, which they consider to be a positive sign of effectiveness of the STD training. To date, however, no follow up has been done to assess whether case management practices have improved. One problem observed by the CSX Estate Technical Advisor (now the director of Thandizani Mayo) is that case management is often affected by the availability of appropriate drugs. TM will be assisting the estate medical clinics to procure drugs, hopefully ensuring adequate supplies and administration of essential drugs that will enable better case management.

The role of estate medical staff in sustaining child survival activities mainly relates to their supervision of HSAs. It is their responsibility to ensure that the HSAs continue to provide the quantity and quality of health education and promotion in the child survival intervention areas, serving as effective links between the estate medical services and the communities. To date, the supervisory system that has been established seems to be working effectively. Quality of supervision has been addressed through the supervisory training for medical staff and development of the HSAs supervisory checklist. 80% of the medical staff interviewed stated that they use the HSA supervisory checklist and that it is very helpful in developing a team approach. TM will be monitoring HSA activities, working through the estate medical staff in doing so. This should serve as a prompt for the estate medical staff to continue providing supervisory support to the HSAs.

Most volunteers mentioned that they face problems of low level of community participation and "rudeness of community" in carrying out their responsibilities. This may be due to the fact that families from different villages live in the estate compounds, which lack some of the cohesiveness of traditional villages. The volunteers may benefit from further training in motivational techniques and communication skills to help them overcome these perceived problems in working with the community. Supportive supervision may also help volunteers develop skills and confidence to perform. Training for HSAs in supervisory techniques, such as was given to the estate medical staff, would be one option for strengthening skills.

HSA Drop-outs: All but 1 of the 16 HSAs interviewed indicated a willingness to continue working as an HSA. However, there has been a notable increase in the drop-out rate of HSAs since 1996. According to Project HOPE staff, drop-outs are largely attributable to the discrepancy in salary levels between estate HSAs and MOHP HSAs; estates pay as little as one-third the salary rate. To date, the estates have demonstrated a willingness to replace HSAs, and 80% of estate managers stated that they would also provide for training of newly-hired HSAs. However, this is not very efficient and it may be less expensive for the estates to raise the salary *level* of their HSAs. It may be useful for *Thandizuni Mop* to work with the estates to conduct a cost analysis since the HSAs are such a critical part of the overall system.

b. Program Interventions

CDD: Key messages in home management of diarrhea seem to be translating into practice by more mothers. It appears that the health education approach has been effective in producing positive results in this intervention area. Knowledge of health workers on prevention of diarrhea is notably weaker than knowledge on treatment however. An emphasis on prevention of diarrhea in health worker training and in health education sessions could possibly yield even more beneficial results in controlling diarrhea.

Those mothers who are still practicing harmful measures, such as providing less fluids, may be those who do not attend the health talks and should be the main targets for a health education strategy. (Those who have self-selected to attend health classes are already motivated to improved health knowledge **and** practice.)

Nutrition al Improvement for Infants and Children: It is notable that messages about breastfeeding related to diarrhea and those related to other benefits of breastfeeding (e.g., delays pregnancy) seem to be processed vertically and compartmentalized separately by the health workers as well as the mothers. Project HOPE staff posit that there are too many key messages for HSAs to impart on each health topic. Low literacy skills among mothers presents a problem in that they cannot absorb an overload of health information in one health session; HSAs are confronted with deciding which messages to emphasize. Because there exists a cultural barrier to exclusive breastfeeding, messages promoting it tend to be lower priority during health talks. Given this, a revision in the health worker curriculum on breastfeeding that integrates all of the information but gives clear messages in a workable quantity may help the HSAs and volunteers more effectively impart knowledge to mothers.

The cultural barriers to exclusive breastfeeding appear to remain strong even though health education efforts have raised awareness of benefits to mother and child. The project target of 40% exclusive breastfeeding was ambitious given that little is known about the barriers and how to overcome them. Further information is needed about how to overcome the cultural barriers in order to design appropriate interventions. Focus group discussions to gain information about the cultural barriers were mentioned as a potential activity for this intervention in the DIP but were not carried out. Considering the difficulty of changing practices even as knowledge is increasing about benefits of exclusive breastfeeding, focus group discussions would be more appropriate than ever. Interventions designed to impact on exclusive breastfeeding need to be based on more sound information gained through thorough study.

Growth Monitoring: Knowledge level of HSAs on signs of malnutrition suggests that the health worker curriculum needs to strengthen messages about nutrition and the link with growth monitoring. Promotion and follow-up activities have not been carried out consistently or at the expected level in spite of availability of Road-to-Health cards and use of rosters to identify target groups and high-risk cases. In general, there is low interest in nutrition-related activities, likely rooted in cultural preconceptions and practices. More information is needed about these barriers in order to **design** appropriate interventions.

Focus groups with health workers on their attitudes and beliefs may yield interesting insights as a place to begin more formal study on nutrition barriers.

Maternal Nutrition: HSAs most often provided health talks on maternal nutrition and care at antenatal clinics. However, women who attend the antenatal clinics are already pregnant, in which case messages may be reaching them too late; many important maternal nutrition messages are appropriate for adolescent girls and women who are not yet pregnant. These women and girls represent missed opportunities to have impact on maternal nutrition. Providing health talks to *all* women of child-bearing age may have a greater impact on maternal nutrition. This means that health education sessions should take place in venues other than the antenatal clinics, wherever these groups are most likely to be able to attend.

Nutrition health **talk** attendances have generally been low compared to other topics covered by the HSAs, though data available makes it difficult to tell if health workers are giving fewer talks on nutrition or if there is less interest from mothers in attending health talks on nutrition. Also, husbands figure largely in the cultural practices affecting maternal nutrition, such as family food distribution, yet no health education on maternal and child nutrition is targeted to them. Strategies to improve maternal nutrition should incorporate methods for reaching all women of child-bearing age and husbands in ways that attract their attention and participation. As suggested above, formal research on **cultural** beliefs surrounding nutritional practices is warranted.

Maternal Card Retention: There appears to be little importance given to retention of maternal health cards compared to Road-to-Health cards. This may be because of the disincentive attached to losing a child's card: MOHP policy is to start the child's immunizations from the beginning, which is bothersome for the mother. There is no similar disincentive if a mother loses her card. Until such time as maternal card retention rates improve, it will be difficult to assess maternal care practice levels with accuracy. Activities to improve card retention have not been specifically designed but are warranted.

Family Planning: Family planning is perceived to be one of the most important CSX activities by estate medical staff, the District Health Management Teams and the communities even though attendances at health talks is lower for family planning than any other topic. Low attendances may be related to the personal nature of the topic. The MOHP has recently introduced IPCC to emphasize individual counseling vs. group talks on reproductive health matters. Further study to determine effectiveness of various health education approaches for family planning is warranted, including investigating the gender aspects. Currently, 50% of HSAs are males, a fact which may present a barrier to health education on reproductive health matters since it is culturally unacceptable for unrelated males to meet alone with married women. Further training for health workers in IPCC techniques may increase the effectiveness of education on family planning and maternal care, but the acceptability of male HSAs providing such counseling should be determined before any large-scale effort is initiated.

Knowledge and practice differences indicate that health workers, medical staff and beneficiaries alike place more emphasis on family planning than on maternal care, even with more or less equal accessibility to the two types of services. The felt need for family planning appears to be greater, which could be assumed to be because health workers and mothers see greater benefits to their whole family; maternal care may be seen more narrowly as providing benefits to the mother. It may be worthwhile to test a revised maternal care health education component that expands the benefits of maternal care to include benefits for the whole family.

Malaria Control: Although communities complain about malaria being a major health problem for them and attendance at malaria health sessions is relatively high compared to other topics, knowledge about

transmission and prevention is still low. Health worker knowledge also measures low on prevention, Given the proportion of child mortality attributed to malaria, continued health education efforts seem appropriate, but should be combined with another activity that would enable target populations to act on knowledge. The impregnated bednet operations research project will hopefully yield some results that can be utilized in designing an activity to complement health education efforts in any future malaria control projects.

HIV/AIDS Prevention: Objectives under this intervention are stated as project **outputs rather than impact** on behavioral change. Output objectives have been achieved as planned, but impact on increasing knowledge of target group members is so far negligible. The types of behavior changes needed to impact on the HIV/AIDS epidemic in Malawi will take much longer than a three year project. Nevertheless, objectives need to be formulated that help measure progress toward behavioral change rather than project outputs.

B. Project Sustainability

1. Community Participation

a. Target Group Members

All of the communities with which the evaluation team met were able to list various activities of Project HOPE's program even though they were unable to clearly articulate the goals. Project activities they most often mentioned were sanitation, family planning, EPI, diarrhea, malaria, and AIDS, indicating a familiarity with the broad range of activities carried out through the CSX project. They responded that their major participation in the program was to actively engage in the health activities, select volunteers, and follow advice of the health workers. 6 of the 16 groups said that they had been involved in planning some activities by identifying problems for action and topics for health talks. Male participation has largely been through assisting in latrine construction and offering encouragement to women to attend health activities and follow through with advice from health workers.

The project's health education approach assumes that many target group members will attend health talks given by the health workers. The final KPC results indicate that 61.0-67.7% of mothers with children under 2 years had attended health talks within the last 6 months. The potential for onward sharing of information gleaned from health talks may provide insights into other channels for promoting behavior change.

Based on the survey results and health talk attendance records, communities have shown willingness to participate in the program according to expectations of program implementers. *So far*, they have mostly been expected to take advantage of health education opportunities rather than to actively plan or evaluate health activities. Given the **passive** level of their participation, it is unlikely that the communities have developed the skills to take charge of planning and managing their own health program, but they have shown that they are interested in improving their health and are willing to support programming efforts, such as health education. directed toward that end.

b. Volunteers

Volunteers, as the community-level health workers, are an important facet of sustainability. They are the main promoters of participation in health activities. The majority of volunteers are chosen by their communities on the basis of criteria suggested by Project HOPE, such as literacy level, trust of the community, and willingness to serve. All of the 16 volunteers who were interviewed by the evaluation

team indicated that they would like to continue as volunteers; many stated that they are motivated by the self-improvement aspects that come through training as well as the status they gain within their community. This high level of motivation to do the job is encouraging for sustainability of the community link in the overall health network.

On the other hand, most mentioned that they face problems of low level of community participation and ‘-rudeness of community’ in carrying out their responsibilities. The volunteers may benefit from further training in motivational techniques and communication skills to help them overcome these perceived problems in working with the community. Supportive supervision may also help volunteers develop skills and confidence to perform. Training for **HSAs** in supervisory techniques, such as was given to the estate medical staff, would be one option for strengthening skills.

Mulanje volunteers have been responsible for maintaining rosters in addition to promoting participation in health activities. The evaluation team found that most of the volunteers’ rosters **were** not maintained according to standards set in training, though most of the volunteers could name the health activities for which the roster was used and stated that they used their roster for targeting. Specific reasons for this lack of precision in record-keeping would need to be explored to determine if it is feasible to rely on community-level workers to provide basic HIS data and, if so, what **further training** is needed to develop record-keeping skills.

2. NGO Participation

In early 1996, Project HOPE proposed to the estates that they jointly **fund** a Technical Advisor to take over Project **HOPE**’s role of supporting the estate health system. Later that year a permutation of the proposal was accepted by the estates: a local *NGO*, *Thandizani Moyo* (TM), was formed to take over the oversight and training functions of Project HOPE, with **start-up** and core operating costs funded by the estates through the Tea Manufacturers Association.

The estates have initially provided funding for one year and have indicated that they will conduct an annual review before **further** funding is allocated to TM. They expect TM to use estate funding strictly for activities carried out on the estates, in particular training for **HSAs**, monitoring activities of the health network, and assisting with drug procurement and supervision. The estates expect TM to obtain funding from other sources as well since total costs of operation are larger than they are willing to invest at this stage. In this regard, TM has already **successfully** procured funds to implement a family planning and HIV/AIDS project in **Thyolo** district.

Staffing for TM so far includes a director and three program **staff**; the Tea Manufacturers Association is providing an accountant to assist with bookkeeping. Prior to joining TM, three of the four staff members have worked for Project HOPE on the CS programs and are skilled in performing the functions that are expected by the estates. The director is well-known to most of the estate managers, having worked with the estate system for many years. Having experienced staff, at least two sources of funding for program operations, and a director who is well-connected with the estates are positive factors toward preparing TM for taking over health network activities from Project HOPE.

Name recognition of *Thandizani Moyo* is already well established in Thy010 and Mulanje following a meeting with estate managers in June 1997, organized by Project HOPE, during which the TM director gave a presentation about the new organization and its activities. Responding to questions during the evaluation to assess degree of knowledge about TM and role in sustaining activities, 8 out of 9 general managers knew about TM and understood that TM would be taking over the work of Project HOPE with

the estates. Most estate medical staff (80%) and HSAs (60%) also indicated that they were informed about TM and that they were aware TM would take over child survival activities after Project HOPE. The lines of communication within the estate health network appeared to be working effectively to support the phaseover of the child survival program, though a presentation specifically for estate medical staff and health workers would probably help ensure a smoother process. Both of the District Health Management Teams know about TM and anticipate that community-level activities and support for HSAs will continue under TM's management.

Expectations are high for TM. Project HOPE has set up an extensive and complex array of interventions with the assistance of many staff, monitoring and supervision at the same level as provided by Project HOPE is not feasible for a four-person organization, especially one that is newly-created and still defining its long-term mission, vision and goals. The evaluation team, considering the skills, capabilities and expectations of the various levels of stakeholders in the health network, developed the following recommendations for TM to consider to assist in prioritizing work load and activities:

1. Initiate a formal strategic planning process that will include development of a written mission statement, staff job descriptions, plans for staff development and fundraising, and initial work plan. Through this process, define the institutional needs of TM - given the high expectations of stakeholders - and identify options for meeting them. In particular, maintain ties to Project HOPE and "piggyback" on trainings that are conducted under other health projects.
2. Develop a system or mechanism that will ensure accountability and transparency of TM's operations in order to facilitate communication and understanding of program and related operating costs by the funding organizations/donors, especially the estates. Methods could include:
 - Regular written communications and oral presentations about TM's activities and finances would be useful means of keeping estate management abreast of issues and would probably facilitate a sense of ownership of the program. By the same token, open lines of communication would help keep TM staff informed of estate management's expectations.
 - Regularly develop work plans and present them - at least in broad terms - to estate management.
 - Develop a simplified monitoring and evaluation system, based on program objectives and activities, that will provide basic program data for use in reports and presentations to donors, counterpart organizations (i.e., MOHP and other NGOs), estate medical staff and health workers, as well as for internal planning purposes.
3. Establish good working relationships and strategic partnerships with MOHP and other NGOs. Facilitate collaboration by avoiding duplication of effort, developing complementary work programs, and sharing technical resources to the extent possible. This can be done by arranging regular meetings and sharing information about programs.
4. Negotiate with the Tea Manufacturers Association members to employ fully-trained and qualified Medical Assistants to staff the estate clinics in order to minimize problems related to patient case management and drug procurement issues, leaving more time for TM to work with other facets of the health network, particularly the community-level health workers and activities.

Thandizani Moyo offers an excellent option for phaseover of Project HOPE's CSX program. It is a rare circumstance that such a compatible sustainability mechanism exists. Ideally, Project HOPE can continue to assist TM by providing training opportunities for staff and sharing other resources to the extent possible in order to help develop TM's institutional capabilities. If TM can successfully manage current work load

and expectations. this phaseover strategy will be a useful model for replication in other programs that work with the private sector.

3. Ability and Willingness of Counterpart Institutions to Sustain Activities

a. Estate Management

The estates have shown a continued commitment to improving the health services for their employees since child survival activities were first initiated by Project HOPE in 1990. This has been done incrementally, beginning with agreement to fund village-level health workers and related expenses (i.e., bicycles, trainings), to allowing medical staff to take part in activities and expand job roles to include supervision of child survival activities, to funding start-up of a local NGO which is intended to sustain the health network activities, By any measure, this level of commitment is remarkable, and Project HOPE is to be commended for efforts in developing it.

Although estate managers are not able to describe specific activities of the program, they are generally aware of the variety of interventions and the emphasis on preventive health. All 8 general managers who were interviewed believe that Project HOPE's program has been effective in improving health of estate employees. This perception has translated into a funding commitment that will enable some level of sustainability of the CSX program.

b. Estate Medical Staff

The role of estate medical staff in sustaining child survival activities mainly relates to their supervision of HSAs. It is their responsibility to ensure that the HSAs continue to provide the quantity and quality of health education and promotion in the child survival intervention areas, serving as effective links between the estate medical services and the communities. To date, the supervisory system that has been established seems to be working effectively. 7 of the 8 estate medical staff who were interviewed stated that supervision was the main support they provide to the HSAs; all of the HSAs said that they received supervision from medical staff. Quality of supervision has been addressed through the supervisory training for medical staff and development of the HSAs supervisory checklist. 80% of the medical staff interviewed stated that they use the has supervisory checklist and that it is very helpful in developing a team approach. TM will be monitoring HSA activities, working through the estate medical staff in doing so. This should serve as a prompt for the estate medical staff to continue providing supervisory support to the HSAs.

Supervision of the estate medical staff themselves is an issue which requires attention, particularly regarding case management. Though estate employees generally have good access to medical services, the quality of care has not always been at an acceptable standard. For this reason, medical staff have received training to improve their case management for ALRI and STDs. The Mulanje District Health Medical Team commented that they now receive more STD case referrals from the estates since the STD training, which they consider to be a positive sign of effectiveness of the STD training. To date, however, no follow up has been done to assess whether case management practices have improved. One problem that has been observed by the Estate Medical Advisor (now the director of TM) is that case management is often affected by the availability of appropriate drugs. TM will be assisting the estate medical clinics to procure drugs, hopefully ensuring adequate supplies of essential drugs that will enable better case management.

c. Health Surveillance Assistants

The HSAs are the linchpin in the estate health network. Sustainability of the network is dependent on their ability to serve as effective health promoters and educators, informing target populations **about** preventive health practices and services. The estate medical staff rely on them to provide basic health data about the communities and to assist at the antenatal and Under 5 clinics.

The HSAs have collectively conducted hundreds of health education sessions with groups over the course of the CSX project. In some intervention areas there has been a notable increase in knowledge and/or practice of mothers which is reasonable to conclude was at least partly the result of the health education provided by the HSAs. However, in some intervention areas, such as nutrition and maternal care, the HSAs have demonstrated a need for further training to enhance their own understanding and knowledge. In most intervention areas, the HSAs have benefited from refresher training. Sustainability of the health education approach will be dependent on a system of continuing education for the HSAs, which is one of the key responsibilities of TM, and on continued funding for training costs.

All but 1 of the 16 HSAs interviewed indicated a willingness to continue working as an HSA. However, there has been a notable increase in the drop-out rate of HSAs since 1996. According to Project HOPE staff, drop-outs are largely attributable to the discrepancy in salary levels between estate HSAs and MOHP HSAs; estates pay as little as one-third the salary rate. To date, the estates have demonstrated a willingness to replace HSAs, and 80% of estate managers stated that they would also provide for training of newly-hired HSAs. However, this is not very efficient and it may be less expensive for the estates to raise the salary level of their HSAs. It may be useful for Thandizani Moyo to work with the estates to conduct a cost analysis since the HSAs are such a critical part of the overall system.

d. Ministry of Health & Population

Linkages have been strengthened between MOHP and the estate medical clinics as a result of Project HOPE's CSX program. The District Health Management Team in Mulanje commented that such links did not exist prior to the project; both district teams believe that cooperation and collaboration have increased. The most substantive area of collaboration is training (i.e., use of MOHP curricula, case management guidelines, and trainers; transport and training materials provided by Project HOPE). MOHP also provides drugs and contraceptives to the estates, though this has always been the case.

Both District Health Management Teams expressed appreciation for Project HOPE's health education and training approach, commenting that this has been particularly effective in raising awareness about family planning, AIDS, EPI, CDD and appropriate treatment-seeking by mothers for their children with malaria and ALRI.

Both district teams also stated that it would be difficult to sustain activities at the same level after the CSX project concludes. While they are very willing to continue to include estate medical staff and health workers in MOHP-sponsored trainings, they stated that they would not be able to cover the costs of as many trainings. Both teams are anticipating that Thandizani Moyo will continue to provide support and training to the estate-based HSAs to sustain the community-level activities and are willing to work with Thandizani Moyo in this regard.

4. Sustainability Plan, Objectives, Steps Taken and Outcomes

Project HOPE's plan for sustaining impact of CSX are centered around the commitment and willingness of the estates to fund key components of the health network. With the formation of the NGO, Thandizani Mayo, with start-up funding provided by the Tea Manufacturers Association and employees drawn from experienced Project HOPE staff and consultants, potential for sustainability is much more assured.

See Table 1 for a listing of project sustainability objectives and outcomes

IV. Evaluation Team

Please refer to Appendix A for a listing of evaluation team members and their institutional affiliations

TABLE 1
SUSTAINABILITY PLAN, OBJECTIVES, STEPS TAKEN AND OUTCOMES

GOAL	END-OF-PROJECT OBJECTIVES	STEPS TAKEN TO DATE	OUTCOMES (based on final evaluation survey)
1. Estates will provide training, supervision, and logistical support to a functioning preventive health network of HSAs and volunteers.	MULANJE: 1.1 Estates will hire HSAs as employees and pay their salaries.	1.1 Project HOPE has met periodically with estate management to solicit their agreement to provide financial support for the HSAs and the health network.	1.1 All estates employ HSAs and pay their salaries. However, salaries are lower than MOHP HSAs salary level and has resulted in some turnover. (100% of objective)
	1.2 Estates will replace HSAs that leave.	1.2 --to do--	1.2 Most estates have a policy - though not written - in place to replace HSAs that leave. (50% of objective)
	1.3 Estates will pay the transport for training of the HSAs .	1.3 --to do--	1.3 Most estates pay training costs, including transport, for their HSAs . (80% of objective)
	1.4 Estates will pay for maintenance of HSAs' bicycles.	1.4 --to do--	1.4 All estates pay for HSAs' bicycles, including repair and maintenance in some cases. (100% of objective)
	1.5 Training of volunteers will be done jointly by Project HOPE, HSAs , and estate medical staff.	1.5 HSAs have been trained in communication and teaching methods to enable them to train others.	1.5 Project HOPE has used HSAs and estate medical staff as trainers for volunteer trainings. MOHP staff have also served as trainers for volunteers. (100% of objective)

GOAL	END-OF-PROJECT OBJECTIVES	STEPS TAKEN TO DATE	OUTCOMES (based on final evaluation survey)
	1.6 Activities will be carried out in line with MOHP guidelines.	1.6 Project HOPE has used MOHP protocols and training guidelines for key interventions in which project groups are trained.	1.6 District Health Medical Team stated that Project HOPE's program has strengthened links between MOHP and estates, facilitated by use of MOHP staff in some interventions. MOHP -personnel are visiting estate clinics more frequently to provide advice. (100% of objective)
	1.7 Estate medical staff will be trained as trainers and supervisors of HSAs and volunteers.	1.7 Estate medical staff have received training in use of supervisory checklist to monitor and assist HSAs in carrying out their activities.	1.7 Most estate medical staff are using supervisory checklist to monitor has activities (80% of objective)
	1.8 Estate medical staff will be involved in the programming and managing CS activities.	1.8 Estate medical staff have been trained to use HSAs Monthly Consolidated Report to gather community health data for use in action planning.	1.8 Most estate medical staff report that they have been involved in planning, implementation, monitoring and evaluation of CS activities with Project HOPE. (80% of objective)
	THYOLO: 1.9 Estate medical staff will be responsible for supervision of HSAs and will be conducting regular monthly supervision visits of their work in the compounds.		1.9 All but 1 of HSAs interviewed reported that they are supervised by estate medical staff. Supervision consists of reviewing reports submitted by HSAs , attending health sessions, identifying weaknesses , and observing work. (94% of objective)

GOAL	END-OF-PROJECT OBJECTIVES	STEPS TAKEN TO DATE	OUTCOMES (based on final evaluation survey)
	1.10 Compound health committees will be created in all compounds with permanent estate workers.	1.10 Project HOPE approached estate management to obtain agreement on forming compound health committees.	1.10 Estate management felt that such committees would be redundant of Compound Welfare Committees and may only create dissension. Therefore, this activity was dropped.
	1.11 Estates will support costs of training replacement HSAs and providing refresher training, conducting all training, with Project HOPE staff only serving as observers.	1.11 Project HOPE has increasingly involved estate medical staff in planning and implementing training activities over the course of the grant in order to build skills in managing this aspect of the health network. MOHP personnel have been used as trainers in order to ensure compliance of estate clinics with MOHP guidelines and protocols.	1.11 Estates continue to rely on Project HOPE to liase with MOHP for training activities, but MOHP has begun to spontaneously invite estate medical staff and HSAs to participate in MOHP-sponsored trainings. The link between MOHP and the estates has steadily strengthened through the facilitative role played by Project HOPE. (75% of objective)
	1.12 Estates will support the costs of training volunteers; training will be conducted independently of Project HOPE using estate medical and MOHP staff.	1.12 --to do--	1.12 --to do--
	1.13 Estates will repair and replace HSA bicycles.	1.13 Project HOPE has obtained agreements from estates prior to CSX that estates would pay for HSA bicycles.	1.13 88% of estate managers interviewed reported that estates pay for repair, maintenance, and, in some cases, replacement of HSA bicycles (88% of objective)

GOAL	END-OF-PROJECT OBJECTIVES	STEPS TAKEN TO DATE	OUTCOMES (based on final evaluation survey)
<p>2. Estates will hire a Public Health Technical Advisor who will carry on the technical support role that Project HOPE has played.</p>	<p>2.1 Estates will provide financial contributions to support the Public Health Technical Advisor. Estates will support the costs of salary, transportation, and supplies of a technical advisor.</p>	<p>2.1 Project HOPE has retained the services of an Estate Medical Advisor throughout the CSX project to serve as a liaison on technical issues with estate management, including quality of care provided by estate clinics.</p> <p>In lieu of a Public Health Technical Advisor, Project HOPE has supported formation of a local NGO, Thandizani Moyo, to take on support functions provided by Project HOPE to the estate health network. This includes monitoring quality of care provided by the estate clinics, training of health workers, procurement of drugs and liaison with estate management and MOHP.</p> <p>Project HOPE introduced Thandizani Moyo at a forum of estate managers and solicited financial support for TM to carry on the basic support functions which have been provided by Project HOPE</p>	<p>2.1 Estates have unanimously accepted the proposal to enlist Thandizani Moyo as the organization to which Project HOPE will phase over its support and development of the estate health network. This approval has been demonstrated by financial support to cover core operating costs, including staff salaries, and to provide some accounting support services. (100% of objective)</p>

APPENDIX A

EVALUATION TEAM MEMBERS

Evaluation Team Members

1. Mrs. Lisa Lanier **Krift**, Consultant/Team Leader
2. Mrs. Martha Bokosi, Family Health Officer, Regional Health Office, MOHP/Southern Region
3. Mrs. Limwado, District Nursing Officer, District Health Office, Mulanje
4. Mrs. Dorothy Kaliwa, In-Charge, Maternity, District Health Office, Thy010
5. Dr. Elizabeth Miller, Estate Medical Advisor for the Tea Estates and Director of *Thandizani Mayo*
6. Mr. Mataka,, Program **Coordinator/Mulanje**, *Thandizuni Mayo*
7. Mrs. Kiahone, Program **Coordinator/Thyolo**, *Thandizani Mayo*
8. Mr. Katondo, Program Assistant, *Thandizani Moyo*
9. Mr. Timothy Kachule, Child Survival Coordinator, Project HOPE, Malawi
10. Mr. Henry Gondwe, Field Trainer, Project HOPE, Malawi
11. Dr. Bettina Schwethelm, Director, Maternal and Child Health Programs, Project HOPE, USA

Project HOPE Director, Dr. Ciro France, was available throughout the evaluation process as a resource to the team.